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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/611,934	07/03/2003	Sadao Kanbe	45360	3959

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EXAMINER	
HAIDER, SAIRA BANO	
ART UNIT	**PAPER NUMBER**
1796	
MAIL DATE	**DELIVERY MODE**
10/25/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/611,934	KANBE ET AL.	
	Examiner	Art Unit	
	Saira Haider	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 August 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *9 and 11-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9 and 11-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/15/2007 has been entered.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claim 9 and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Albert et al. (US 6017584) in view of Liang et al. (US 2002/0131152).

4. Albert discloses encapsulated electrophoretic displays and materials useful in fabricating such displays. Specifically, Albert discloses the formation of a composition comprising microcapsules and an aqueous phase. Electrophoretic particles dispersed within a suspending, or electrophoretic, fluid are encapsulated in the shell of the microcapsules (Abstract, Example 1, C). Albert discloses a variety of suitable electrophoretic particles, such as titania (col. 12, line 54 to col. 15, line 60). Albert discloses a variety of suitable suspending fluids, such as organic solvents, specifically aromatic hydrocarbons, such as, toluene (col. 16, line 39). Albert discloses a variety of suitable microcapsule shell materials which encapsulate the particles and the suspending fluid (col. 19, lines 31 to col. 21, line 21). Albert discloses that the microcapsule diameter is between 5 and about 200 μm (col. 3, lines 37-38). Albert exemplifies that the microcapsule composition is comprised solely of the microcapsules and the aqueous phase; hence the total content is considered 100 wt% (Example 1,

C). The microcapsule composition formed in Example 1, part C, does not contain a binder, hence meeting the newly added limitation.

5. In reference to the claimed limitation regarding the amount of microcapsules present in the microcapsule composition (the claimed weight percentage of 30-80%), Albert discloses that the microcapsules are added to the resin in an amount (based on weight) between one eighth and one tenth (col. 22, lines 43-52). Wherein suitable resins include water-soluble polymers, such as polyvinyl alcohols (col. 22, lines 21-25). Thus the microcapsules are present in an amount of 80% by weight in the microcapsule composition (which comprises the microcapsules and, for example, polyvinyl alcohols). The examiner realizes that this disclosure is included in the Binder Material section of the Albert reference; however, applicants recognize water-soluble polymers as a suitable material for the aqueous medium ([0061] of applicants' PG PUB). Thus, it appears that the term "binder" includes various meanings. Wherein, as per MPEP §2111.01, the words of the claims must be given their plain meaning unless the plain meaning is inconsistent with the specification. Therefore, the term binder is given the meaning consistent with the specification, and thus does not include water-soluble polymers.

6. The Albert reference fails to explicitly disclose the exact values of the particle distribution by volume, as claimed. However, Albert discloses that one skilled in the art will select an encapsulation procedure and wall material based on the desired capsule properties.. These properties include the distribution of capsule radii, in addition to other properties (col. 20, lines10-16). Hence, it would have been obvious to one of ordinary skill in the art at the time of the invention to select a particular encapsulation procedure to ensure that the distribution of the capsules falls within the claimed range.

7. Additionally, attention is directed towards the Liang et al. reference, which teaches that he size distribution of the microcapsules prepared via the process of Albert is broad, resulting in poor resolution and addressability for color applications [0007]. Thus, it would have been obvious to one of ordinary skill in the art to narrow the microcapsule size distribution of Albert in order to improve the resolution and addressability for color applications in electrophoretic displays. Wherein it would have been obvious to one of ordinary skill in the art to optimize the size distribution; it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

8. Clearly, Ling et al. recognizes the size distribution of microcapsules in electrophoretic displays as a result effective variable because changing it will clearly affect the type of product obtained. See MPEP § 2144.05 (B). Case law holds that "discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art." See *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In view of this, it would have been obvious to one of ordinary skill in the art to modify the particle diameter distribution by volume to values within the scope of the present claims so as to produce desired end results.

9. In reference to the product-by-process limitations of claims 12 and 13, it is noted that Albert exemplifies sieving the microcapsule slurry prior to mixing with the aqueous solution (Example 1, col. 24, lines 22-23). Wherein it is well known in the art that sieving is utilized to size particles. Thus the reference is suggesting a type of wet-sizing process (wet classification). It would have been obvious to one of ordinary skill in the art at the time of the inventing to sieve the microcapsule slurry prior to mixing with the aqueous solution, as per the suggestion of Albert, in order to obtained a desired size distribution.

10. Additionally, it is the examiner's position that the product of Albert appears to be the same or similar to that claimed, although produced by a different process. Specifically, since the electrophoretic particles, suspending fluid and aqueous binder of Albert correspond to those claimed and provided in the specification, it is clear that the resulting microcapsule composition of Albert is the same or similar to that claimed.

11. The examiner has provided a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi,* 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983).

12. Claims 9 and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi et al. (US 2001/0046081) in view of Liang et al. (US 2002/0131152).

13. Hayashi discloses a display element (electrophoretic display) comprising a microcapsule composition (abstract). The microcapsule composition comprises microcapsules and an aqueous solution [0188]. The microcapsules comprise a dispersed system sealed in the microcapsule, wherein the dispersed system comprises electrophoretic particles dispersed in dielectric liquid. The dielectric liquid includes solvents [0168-0170]. Wherein the microcapsules and aqueous solution comprise 100% of the microcapsule composition [0188]. Hayashi discloses that the microcapsules have a core diameter in the range of 10 to 200 μm [0036]. Wherein the shell has a thickness of 3 μm or more [0325].

14. Hayashi fails to disclose two limitations, the weight percent of microcapsules present in the microcapsule composition and the size distribution of the microcapsules.

15. In reference to the weight percent of microcapsules present in the microcapsule composition, it is the examiner's position that depending on the desired outcome of the electrophoretic display, one of ordinary skill in the art would readily be capable of modifying the weight percent of microcapsules present in the composition in order to obtain enhanced optical characteristics.

16. The Hayashi reference fails to explicitly disclose the exact values of the particle distribution by volume, as claimed. Hence attention is directed towards the Liang et al. reference, which teaches that the size distribution of the microcapsules of the prior art are broad, resulting in poor resolution and addressability for color applications [0007]. Thus, it would have been obvious to one of ordinary skill in the art to narrow the microcapsule size distribution of Hayashi in order to improve the resolution and addressability for color applications in electrophoretic displays. Wherein it would have been obvious to one of ordinary skill in the art to optimize the size distribution; it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

17. Clearly, Ling et al. recognizes the size distribution of microcapsules in electrophoretic displays as a result effective variable because changing it will clearly affect the type of product obtained. See MPEP § 2144.05 (B). Case law holds that "discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art." See *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In view of this, it would have been obvious to one of ordinary skill in the art to modify the particle diameter distribution by volume to values within the scope of the present claims so as to produce desired end results.

18. In reference to the product-by-process limitations of claims 12 and 13, it is the examiner's position that the product of Hayashi appears to be the same or similar to that claimed, although

produced by a different process. Specifically, since the electrophoretic particles, suspending fluid and aqueous binder of Hayashi correspond to those claimed and provided in the specification, it is clear that the resulting microcapsule composition of Hayashi is the same or similar to that claimed.

19. The examiner has provided a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi,* 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983).

Response to Arguments

20. Applicant's arguments filed have been fully considered but they are not persuasive.

21. Applicants have argued that the Albert reference fails to disclose the claimed microcapsule composition in the absence of a binder. Attention is directed above, wherein the examiner has clearly explained the basis of the rejection. Applicants have alleged that the presence of the binder in the composition of Albert results in various undesirable properties (as compared to the herein claimed composition). However, applicants have not provided evidence in support of their argument, thus, the allegations are rendered insufficient to rebut the *prima facie* case of obviousness.

22. Applicants have argued that the Albert reference fails to disclose the claimed weight percentage of microcapsules in the microcapsule composition; attention is directed to the rejection above. Further, applicants have argued that the Albert reference fails to disclose the claimed diameter of the microcapsules, and that the examiner is referring to various sections of the Albert reference which taken as a whole to do not suggest the claimed microcapsule composition. Attention is directed to col. 3, lines 27-40, which disclose electrophoretic particles and a suspending fluid encapsulated into capsules in a binder. Wherein the capsule diameter is about 5 to about 200

μm. The examiner has explained the interpretation of the term "binder," above. Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

23. Applicants' have argued that the process limitation of claim 12 is a structurally defining limitation, as supported by the examples and comparative examples of the specification. In response, it is noted that the examples and comparative examples fail to establish that the absence of drying in the preparation of the claimed microcapsules results in a structural difference. Rather, it is noted that the inventive examples of applicants involve suction filtration resulting in the microcapsules as a filtered cake. Hence, the inventive examples clearly involve a type of drying, even though applicants' state in the abstract that the claimed product is obtained without involving the step of drying the microcapsules.

24. In reference to claim 13 (drawn to wet classification) as a structurally defining limitation, the examiner has discussed the employment of wet classification in the Albert reference, thus treating the limitation as a structurally defining limitation. Applicants have not responded to this portion of the rejection. Further, it is noted that the Hayashi reference discloses wet classification [0317].

25. Applicants have argued that the Hayashi reference fails to disclose the particle diameter, attention is directed to [0036] of the Hayashi reference, which disclsoes particle diameters in the range of 10-200 microns.

26. Applicants have essentially argued that the 103 rejections are invalid because the Liang reference does not cure the deficiencies of the primary references. In support of their argument, applicants have stated that Liang does not disclose a microcapsule composition and thus there is no teaching or suggestion to provide the claimed particle diameter. The examiner has thoroughly

considered applicants' arguments and the support provided, and concludes that the obviousness rejections are valid. It is noted that the cited portion of the Liang reference is [0007] which discloses that a large particle size distribution is not desired, thus motivating one to narrow the particle size distribution. Further the examiner has presented rational that modification of the particle size distribution would have been obvious to one of ordinary skill in the art. Applicant has not provided evidence to the contrary. Rather, the Albert reference teaches one to select an encapsulation technique to control the particle size distribution. Additionally, since Liang recognizes particle size distribution as a result effective variable, it would have been obvious to modify the distribution in order to obtain optimum results. It is not necessary for the Liang reference to disclose the mode of distribution optimization, since one of ordinary skill in the art would readily be capable of optimizing the distribution. Thus evidence of obviousness outweighs evidence of non-obviousness and the rejections are rendered valid.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saira Haider whose telephone number is (571) 272-3553. The examiner can normally be reached on Monday-Friday from 10am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy P. Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Saira Haider
Examiner
Art Unit 1796

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